



UNITED STATES PATENT AND TRADEMARK OFFICE

D
UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--------------------------------|-------------|----------------------|---------------------|------------------|
| 10/730,944 | 12/10/2003 | Toshihiko Kaku | Q78811 | 6284 |
| 23373 | 7590 | 05/11/2007 | EXAMINER | |
| SUGHRUE MION, PLLC | | | RUSH, ERIC | |
| 2100 PENNSYLVANIA AVENUE, N.W. | | | ART UNIT | PAPER NUMBER |
| SUITE 800 | | | 2609 | |
| WASHINGTON, DC 20037 | | | | |
| MAIL DATE | | DELIVERY MODE | | |
| 05/11/2007 | | PAPER | | |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | |
|------------------------------|------------------------|---------------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 10/730,944 | KAKU, TOSHIHIKO |
| | Examiner Eric Rush | Art Unit 2609 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 10 December 2003.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-7 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 10 December 2003 is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 - Certified copies of the priority documents have been received in Application No. _____.
 - Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 10 December 2003.
- 4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) Notice of Informal Patent Application
- 6) Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1 and 3 are rejected under 35 U.S.C. 102(b) as being anticipated by Chen et al. U.S. Publication No. 2002/0081032.

- With regards to claims 1 and 3: A face recognition method and apparatus (Chen et al. Fig. 1, Page 3 Paragraph 0091) for recognizing face portions in an image based on image data of the image, comprising: a detection step of detecting, in the image, eye portions which have undergone a predetermined color change, based on the image data; (Chen et al. Page 5 Paragraphs 0113 - 0116) and a recognition step of recognizing face portions in the image based on the eye portions detected in the detection step. (Chen et al. Fig. 2 Elements 210, 218, 219 and 211 and Fig. 3, Page 4 Paragraph 0109 Lines 7 – 13, Chen et al. first detects eyes in an image and from then determines a sub-image region, containing a face).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 2, and 4 – 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al. U.S. Publication No. 2002/0081032 in view of Wang et al. U.S. Patent No. 6,278,491.

- With regards to claim 2: Chen et al. teach the face recognition method according to claim 1. Chen et al. fail to teach wherein the detection step detects red-eye portions in the image. Wang et al. teach wherein the detection step detects red-eye portions in the image. (Wang et al. Fig. 1 Elements 11 and 12, Column 3 Lines 23 - 38) It would have been obvious to

one of ordinary skill in the art at the time of the invention to modify the invention of Chen et al. with the teachings of Wang et al. This modification would have been prompted because red-eye correction is well known in the art and is a significant method of correcting eye color defects and enhancing the visually appeal of images containing people, specifically faces.

- With regards to claim 4: Chen et al. in view of Wang et al. teach a face extraction method for extracting face portions from an image and generating facial images based on image data of the image, comprising: detection step of detecting, in the image, eye portions which have undergone a predetermined color change, based on the image data (Chen et al. Page 5 Paragraphs 0113 - 0116); a recognition step of recognizing face portions in the photographic image based on the eye portions detected in the detection step (Chen et al. Fig. 2 Elements 210, 218, 219 and 211 and Fig. 3, Page 4 Paragraph 0109 Lines 7 – 13, Chen et al. first detects eyes in an image and from then determines a sub-image region, containing a face); and a face image generating step of generating facial images by extracting, from the image, the face portions which have been recognized in the recognition step and whose color change has been corrected in the correction step (Chen et al. Page 4 Paragraph 0099 Lines 5 – 10). Chen et al. fail to teach a correction step of correcting the color change in the eye portions detected in the detection step. Wang et al. teach a correction step of correcting the color

change in the eye portions detected in the detection step. (Wang et al. Fig. 1, 2 and 7 Column 7 Lines 45 – 54) It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of Chen et al. with the teachings of Wang et al. This modification would have been prompted because red-eye correction is well known in the art and is a significant method of correcting eye color defects and enhancing the visually appeal of digital images containing people, specifically faces.

- With regards to claim 5: Chen et al. in view of Wang et al. teach a face extraction method for extracting face portions from an image and generating facial images based on image data of the image. Chen et al. teach a face image-generating step of generating facial images by extracting, from the image, the face portions which have been recognized in the recognition step and whose red-eye portions have been corrected in the correction step (Chen et al. Page 4 Paragraph 0099 Lines 5 – 10). Chen et al. fail to teach a detection step of detecting red-eye portions in the image, based on the image data; a recognition step of recognizing face portions in the image based on the red-eye portions detected in the detection step; a correction step of correcting the red-eye portions detected in the detection step. Wang et al. teach a detection step of detecting red-eye portions in the image, based on the image data (Wang et al. Fig. 1 Element 12 and Fig. 2, Column 4 Lines 13 – 23 and Lines 30 – 43); a recognition step of recognizing face portions in the

image based on the red-eye portions detected in the detection step (Wang et al. Column 4 Lines 13 – 23 and Column 5 Lines 20 - 24, based on the red-eye detection Wang et al. are able to determine the size and location of the pupils, face portions); a correction step of correcting the red-eye portions detected in the detection step (Wang et al. Fig. 1, 2 and 7 Column 7 Lines 45 – 54). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of Chen et al. with the teachings of Wang et al. This modification would have been prompted because Chen et al. discloses a method of extracting face portions from an image based on the detected eyes and notes that the manner of eye area detection for determining the sub-image is not limited to their method but can use other well known methods for detecting the eyes (Chen et al. Page 4 Paragraph 0110 Lines 3 - 8) such as the one disclosed by Wang et al.

- With regards to claim 6: Chen et al. in view of Wang et al. teach an image pickup apparatus which photographs a subject and generates photographic image data of a photographic image (Chen et al. Column 3 Lines 54 – 67). Chen et al. teach a detection section that detects, in the photographic image, eye portions which have undergone a predetermined color change, based on the image data; (Chen et al. Page 5 Paragraphs 0113 - 0116) a recognition section that recognizes face portions in the photographic image based on the eye portions detected by the detection section (Chen et al. Fig. 2 Elements

210, 218, 219 and 211 and Fig. 3, Page 4 Paragraph 0109 Lines 7 – 13, Chen et al. first detects eyes in an image and from then determines a sub-image region, containing a face); and a face image generating section that generates facial images by extracting, from the photographic image, the face portions which have been recognized by the recognition section and whose color change has been corrected by the correction section (Chen et al. Page 4 Paragraph 0099 Lines 5 – 10). Chen et al. fail to teach a correction section that corrects the color change in the eye portions detected by the detection section. Wang et al. teach a correction section that corrects the color change in the eye portions detected by the detection section. (Wang et al. Fig. 1, 2 and 7 Column 7 Lines 45 – 54) It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of Chen et al. with the teachings of Wang et al. This modification would have been prompted because red-eye color correction is well known in the art and is a significant method of correcting eye color defects and enhancing the visually appeal of digital images containing people, specifically faces.

- With regards to claim 7: Chen et al. in view of Wang et al. teach the image pickup apparatus according to claim 6. Chen et al. fail to teach wherein the detection section detects red-eye portions in the image and the correction section corrects the red-eye portions detected by the detection section. Wang

et al. teach wherein the detection section detects red-eye portions in the image (Wang et al. Fig. 2 Element 23, Column 4 Lines 30 – 43) and the correction section corrects the red-eye portions detected by the detection section. (Wang et al. Fig. 1, 2 and 7 Column 7 Lines 45 – 54) It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of Chen et al. with the teachings of Wang et al. This modification would have been prompted because red-eye correction is well known in the art and finding the eyes based on red-areas is well known and disclosed by Wang et al. Although, Chen et al. finds the face portions based on pre-determined color changes in the eye regions, it would have been obvious to search the image for red areas as disclosed by Wang et al. to determine the face portions and areas of the image which need to undergo correction.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Suzuki U.S. Patent No. 5,859,921; which discloses an apparatus for processing an image of a face, including eye area detection means.
- White et al. U.S. Publication No. 2004/0041924; which discloses an apparatus for detecting and correcting eye color defects in digital images.

Art Unit: 2609

- Ray et al. U.S. Patent No. 6,940,545; which discloses a face detecting camera and method for extracting face regions from an image.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric Rush whose telephone number is (571) 270-3017. The examiner can normally be reached on 7:30AM - 5:00PM (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chris Kelley can be reached on (571) 272-7331. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ER


CHRIS KELLEY
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600